Technical Compliance Statement

CE

Ref. No.: ACWE-RC140159 (ACWE-G1103016R2)

For the following equipment

Applicant	:	**ASUSTeK COMPUTER INC.**
Manufacturer #1	:	**ECS Golden Elite Group CO.,LTD PCBA.**
Manufacturer #2	:	**MainTek Computer (Suzhou) Co., Ltd.**
Manufacturer #3	:	**Nissho Technology (Suzhou) Co., Ltd.**
Manufacturer #4	:	**Danriver Technology (Guangzhou) Inc.**
Product	:	**VGA Card**
Model Number	:	**(1) EAH5450 SILENT (2) EAH5450 SILENT/DI/512MD3 (3) HD5450-Y(C093PI) (4) EAH5450 SILENT/Y(C093PI) (5) HD6450-Y(C093PI) (6) EAH6450 SILENT/Y(C093PI) (7) R5230-SL-1GD3-L**
Brand	:	**ASUS**

We, **AUDIX Technology (Wujiang) Co., Ltd. EMC Dept.** hereby certify that the above products has been tested by us with the listed standards and found in compliance with the council EMC directive 2004/108/EC. It is possible to use CE marking to demonstrate the compliance with this EMC Directive. The test data & results are issued on the EMC test report No. **ACWE-E1103008B.**

Emission: EN 55022:2010+AC:2011 and AS/NZS CISPR22:2009+A1: 2010
EN 61000-3-2:2006+A2:2009 and EN 61000-3-3:2013

Immunity: EN 55024:2010
(IEC 61000-4-2:2008, IEC 61000-4-3:2006+A2:2010,
IEC 61000-4-4:2012, IEC 61000-4-5:2014,
IEC 61000-4-6:2013, IEC 61000-4-8:2009,
IEC 61000-4-11:2004)

Oct.28, 2014

Ken Lu/ Assistant General Manager
AUDIX Technology (Wujiang) Co., Ltd. EMC Dept.

The statement is based on a single evaluation of one sample of the above-mentioned products. It does not imply an assessment of the whole production and does not permit the use of the test lab logo.

EMC TEST REPORT
For

ASUSTeK COMPUTER INC.

VGA Card
Model No.: (1) EAH5450 SILENT (2) EAH5450 SILENT/DI/512MD3
(3) HD5450-Y(C093PI) (4) EAH5450 SILENT/Y(C093PI)
(5) HD6450-Y(C093PI) (6) EAH6450 SILENT/Y(C093PI)
(7) R5230-SL-1GD3-L

Brand: ASUS

Prepared for

ASUSTeK COMPUTER INC.
4F, No.150, Li-Te Rd., Peitou, Taipei 112, Taiwan

Prepared by

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Report Number	:	ACWE-E1103008B
Date of Test	:	Mar.11~13, 2014
Date of Report	:	Oct.28, 2014

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TEST REPORT VERIFICATION

Applicant	:	ASUSTeK COMPUTER INC.
Manufacturer#1	:	ECS Golden Elite Group Co., Ltd.
Manufacturer#2	:	MainTek Computer (Suzhou) Co., Ltd.
Manufacturer#3	:	Nissho Technology (Suzhou) Co., Ltd.
Manufacturer#4	:	Danriver Technology (Guangzhou) Inc.
EUT Description	:	VGA Card
(A) Model No.	:	(1) EAH5450 SILENT (2) EAH5450 SILENT/DI/512MD3 (3) HD5450-Y(C093PI) (4) EAH5450 SILENT/Y(C093PI) (5) HD6450-Y(C093PI) (6) EAH6450 SILENT/Y(C093PI) (7) R5230-SL-1GD3-L
(B) Brand	:	ASUS
(C) Test Voltage	:	AC 230V, 50Hz (Via PC)

Applicable standards:

Emission: **EN 55022:2010+AC: 2011 and AS/NZS CISPR22:2009+A1:2010**
EN 61000-3-2:2006+A2:2009 and EN 61000-3-3:2013

Immunity: **EN 55024:2010**
(IEC 61000-4-2:2008, IEC 61000-4-3:2006+A2:2010,
IEC 61000-4-4:2012, IEC 61000-4-5:2014,
IEC 61000-4-6:2013, IEC 61000-4-8:2009, IEC 61000-4-11:2004)

(Note: The EN55022 emission measurement results are deemed satisfactory evidence of compliance with AS/NZS CISPR 22 regulations)

The device described above is tested by Audix Technology (Wujiang) Co., Ltd. EMC Dept. to determine the Maximum emission levels emanating from the device, its ensured severity levels, and performance criterion. This test report contains the measurement results, and Audix Technology (Wujiang) Co., Ltd. EMC Dept. assumes full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT is technically compliance with the requirements of EN 55022、EN 61000-3-2, -3 and EN 55024 standards.

This report applies to above tested sample only and shall not be reproduced in part without written approval of Audix Technology (Wujiang) Co., Ltd. EMC Dept.

Date of Test：Mar.11~13, 2014 Date of Report：Oct.28, 2014

Prepared by : Tina Zhang
(Tina Zhang/Assistant)

Reviewer : Danny Sun
(Danny Sun/ Section Manager)

Approved & Authorized Signer : Ken Lu 10/28
(Ken Lu/ Assistant General Manager)

1 DESCRIPTION OF VERSION

Edition No.	Date of Rev.	Summary	Report No.
0	Mar.23, 2011	Original Report.	ACWE-E1103008
Rev. A	Mar.14, 2014	1.Add four models (1) HD5450-Y(C093PI) (2) EAH5450 SILENT/Y(C093PI) (3) HD6450-Y(C093PI) (4) EAH6450 SILENT/Y(C093PI) 2.Add a new GPU:CAICOS PRO	ACWE- E1103008A
Rev. B	Oct.28, 2014	1. Add a model: R5230-SL-1GD3-L. 2. Change the standards to the latest.	ACWE- E1103008B

2 SUMMARY OF STANDARDS AND RESULTS

2.1 Description of Standards and Results

The EUT has been tested according to the applicable standards and test results are referred as below.

EMISSION				
Description of Test Item	**Standard**	**Limits**	**Results**	**Remark**
Conducted disturbance at main terminal	EN 55022:2010+ AC:2011 and AS/NZS CISPR22:2009+A1:2010	Class B	PASS	Minimum passing margin is 17.89 dB at 5.44MHz
Conducted common mode disturbance at telecommunication port	EN 55022:2010+ AC:2011 and AS/NZS CISPR22:2009+A1:2010	Class B	Note	---
Radiated disturbance	EN 55022:2010+ AC:2011 and AS/NZS CISPR22:2009+A1:2010	Class B	PASS	Minimum passing margin is 6.06dB at 526.64MHz
Harmonic current emissions	EN 61000-3-2: 2006+A2:2009	Class D	PASS	Meets the Class D requirement
Voltage fluctuations & flicker	EN 61000-3-3:2013	P_{st}=1 dc(%)=3.3% dMax.(%)=4% d(t)>3.3%=500ms	PASS	Meets the requirement
IMMUNITY (EN55024:2010)				
Description of Test Item	**Basic Standard**	**Performance Criteria**	**Results**	**Observation Criteria**
Electrostatic discharge (ESD)	IEC 61000-4-2:2008	B	PASS	A
Radio-frequency, Continuous radiated disturbance	IEC 61000-4-3: 2006+A2:2010	A	PASS	A
Electrical fast transient (EFT)	IEC 61000-4-4:2012	B	PASS	A
Surge	IEC 61000-4-5:2014	B	PASS	A
Radio-frequency, Continuous conducted disturbance	IEC 61000-4-6:2013	A	PASS	A
Power frequency magnetic field	IEC 61000-4-8:2009	A	PASS	A
Voltage dips, >95% reduction	IEC 61000-4-11:2004	B	PASS	A
Voltage dips, 30% reduction		C	PASS	A
Voltage interruptions		C	PASS	C

Note: Due to the product doesn't have telecommunication port, so according to the section 6.3 of the standard, it doesn't need measuring the telecommunication port.

2.2 Description of Performance Criteria

General Performance Criteria

Examples of functions defined by the manufacturer to be evaluated during testing include, but are not limited to, the following:

- essential operational modes and states;
- tests of all peripheral access (hard disks, floppy disks, printers, keyboard, mouse, etc.);
- quality of software execution;
- quality of data display and transmission;
- quality of speech transmission.

2.2.1 Performance criterion A

The equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed below a performance level specified by the manufacture when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be deriver from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.

2.2.2 Performance criterion B

After the test, the equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed, after the application of the phenomena below a performance level specified by the manufacture, when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance.

During the test, degradation of performance is allowed. However, no change of operation state or stored data is allowed to persist after the test.

If the minimum performance level (or the permissible performance loss) is not specified by the manufacturer, then either of these may be deriver from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.

2.2.3 Performance criterion C

Loss of function is allowed, provided the function is self-recoverable, or can be restored by the operation of the controls by the user in accordance with the manufacture's instructions.

Functions, and/or information stored in non-volatile memory, or protected by a battery backup, shall not be loss.

3 GENERAL INFORMATION

3.1 Description of Device (EUT)

Product	:	VGA Card
Model Number	:	(1) EAH5450 SILENT (2) EAH5450 SILENT/DI/512MD3 (3) HD5450-Y(C093PI) (Y=0-999999999999999, a-zzzzzzzzzzzzzzz, A-ZZZZZZZZZZZZZZZ, " / ", " - ", SPACE KEY) (4) EAH5450 SILENT/Y(C093PI) (Y=0-999999999999999,a-zzzzzzzzzzzzzzz, A-ZZZZZZZZZZZZZZZ, " / " , " - " , SPACE KEY) (5) HD6450-Y(C093PI) (Y=0-999999999999999, a-zzzzzzzzzzzzzzz, A-ZZZZZZZZZZZZZZZ, " / ", " - ", SPACE KEY) (6) EAH6450 SILENT/Y(C093PI) (Y=0-999999999999999,a-zzzzzzzzzzzzzzz, A-ZZZZZZZZZZZZZZZ, " / ", " - ", SPACE KEY) (7) R5230-SL-1GD3-L
Brand	:	ASUS
Applicant	:	ASUSTeK COMPUTER INC. 4F, No.150, Li-Te Rd., Peitou, Taipei 112, Taiwan
Manufacturer#1		ECS Golden Elite Group Co., Ltd. No.1,Nan-Huan Road, ShaJing, BaoAn, ShenZhen, China
Manufacturer#2	:	MainTek Computer (Suzhou) Co., Ltd. No.233 Jinfeng Road Suzhou New District, Jiangsu Province P.R.C.
Manufacturer#3	:	Nissho Technology (Suzhou) Co., Ltd. No.255 Huajin Rd. Tong'an Town Suzhou New District, Jiangsu Province P.R.C.
Manufacturer#4	:	Danriver Technology (Guangzhou) Inc. No.16, Baoying Dadao, Guangzhou Free Trade Zone, Guangdong, P.R. China
Date of Receipt of Sample	:	Mar.05, 2014
Date of Test	:	Mar.11~13, 2014

Remark for Rev. B:

1. This report is based on the version ACWE-E1103008 & ACWE-E1103008A.
2. The difference between the additional model and the model "EAH6450 SILENT/Y(C093PI)" is just for different marketing, and the test results of EMC won't be affected according to test lab. judged. All results are deemed to compliance with requirement of the standard. All test data could be referred to the report of ACWE-E1103008 & ACWE-E1103008A.

3.2 Description of Test Facility

Name of Firm	:	**Audix Technology (Wujiang) Co., Ltd. EMC Dept.**
Site Location	:	No. 1289 Jiangxing East Road, the Eastern Part of Wujiang Economic Development Zone Jiangsu China 215200
Test Facilities	:	**No.1 10m semi-anechoic chamber** **No. 1 conducted shielding enclosure** **The Complex Immunity Test Room** **RS&CS Test Room**
NVLAP Lab Code	:	200786-0 (NVLAP is a NATA accredited body under Mutual Recognition Agreement) Valid until on Sep.30, 2015

3.3 Measurement Uncertainty

Test Item	Frequency Range	Uncertainty
No. 1 Conducted Shielding Enclosure		
Conducted Disturbance Measurement	150kHz~30MHz	±2.48dB
At 10m Semi-Anechoic Chamber		
Radiated Disturbance Measurement (Distance**:** 10m)	30MHz~1000MHz	± 3.35dB (Horizontal)
		± 3.32dB (Vertical)
Radiated Disturbance Measurement (Distance**:** 3m)	1000MHz~6000MHz	± 4.69dB

Remark：Uncertainty = $ku_c(y)$